Practice: 314 - Brush Management

Scenario: #1 - Mechanical, Hand tools

Scenario Description:

Using hand tools, such as axes, shovels, hoes, nippers, brush pullers, and including chainsaws to cut off woody plants at or below the root collar (autumn olive, bush honeysuckle, multifora rose and privet typical targets). Typical area is moderate rolling to gentle sloping, moderately deep to deep soils that have stands of woody and non herbaceous species that are in the early phases of invasions. Typical unit is 25 acres.

Before Situation:

Area is in the very early phases of woody non herbaceous species encroachment that degrades habitat for desired wildlife species. Future degradation of key forage species and ecological site condition promoting noxious and invasive species and increased soil erosion if woody species are allowed to expand.

After Situation:

Woody species are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition continues to progressing in an upward trend, hydrology and plant health and vigor are sustained.

Scenario Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 25

Scenario Cost: $4,166.69 **Scenario Cost/Unit:** $166.67

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Chainsaw	937	Equipment and power unit costs. Labor not included.	Hour	$6.43	150	$964.50
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$37.98	2	$75.96
Pruning tools, hand tools	1318	Pruning tools, hand tools, shears, loppers, pole saw, handsaw. Material costs only. Labor not included.	Hour	$4.77	10	$47.70
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$18.79	160	$3,006.40
Mobilization						
Mobilization, very small equipment	1137	Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces of equipment if all hauled simultaneously.	Each	$72.13	1	$72.13

Practice: 314 - Brush Management

Scenario: #2 - Mechanical, light Infestation

Scenario Description:

Removal of large woody vegetation of medium infestations on gentle sloping to moderately deep to deep soils. The practice entails the removal of brush by pushing, grubbing, masticating, chaining and then raking or piling in order to reduce fuel loading and improve ecological site condition. Brush density has exceeded desired levels based on ecological site potential. It has been determined that the brush is at 10-20% (light) infestation. Typical unit is 30 acres.

Before Situation:

Area consist of excessive stands of shrub species degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat.

After Situation:

Woody species are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

Scenario Feature Measure: Acres planned

Scenario Unit: Acre

Scenario Typical Size: 30

Scenario Cost: $4,693.63 **Scenario Cost/Unit:** $156.45

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$37.98	10	$379.80
Mechanical cutter, chopper	943	Masticator, flail shredder, hydro axe, brush cutter, etc. Equipment and power unit costs. Labor not included.	Hour	$131.20	25	$3,280.00
Labor						
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12”, Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$19.43	25	$485.75
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$37.24	10	$372.40
Mobilization						
Mobilization, small equipment	1138	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	$175.68	1	$175.68

Practice: 314 - Brush Management

Scenario: #3 - Mechanical, medium Infestation

Scenario Description:

Removal of large woody vegetation of medium infestations on gentle sloping to moderately deep to deep soils. The practice entails the removal of brush by pushing, grubbing, masticating, chaining and then raking or piling in order to reduce fuel loading and improve ecological site condition. Brush density has exceeded desired levels based on ecological site potential. It has been determined that the brush is at 25 – 50% (medium) infestation. Typical unit is 30 acres.

Before Situation:

Area consist of excessive stands of shrub species degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat.

After Situation:

Woody species are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

Scenario Feature Measure: Acres planned

Scenario Unit: Acre

Scenario Typical Size: 30

Scenario Cost: $5,962.61 **Scenario Cost/Unit:** $198.75

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Chainsaw	937	Equipment and power unit costs. Labor not included.	Hour	$6.43	12	$77.16
Skidsteer, 80 HP	933	Skidsteer loader with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	$44.09	60	$2,645.40
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$37.98	18	$683.64
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$18.79	28	$526.12
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$19.43	60	$1,165.80
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$37.24	16.2	$603.29
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$261.20	1	$261.20

Practice: 314 - Brush Management

Scenario: #4 - Mechanical, heavy Infestation

Scenario Description:

Removal of large woody vegetation of medium infestations on gentle sloping to moderately deep to deep soils. The practice entails the removal of brush by pushing, grubbing, masticating, chaining and then raking or piling in order to reduce fuel loading and improve ecological site condition. Brush density has exceeded desired levels based on ecological site potential. It has been determined that the brush is at >50% (heavy) infestation. Typical unit is 30 acres.

Before Situation:

Area consist of excessive stands of shrub species degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat.

After Situation:

Woody species are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

Scenario Feature Measure: Acres planned

Scenario Unit: Acre

Scenario Typical Size: 30

Scenario Cost: $7,771.68 **Scenario Cost/Unit:** $259.06

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Skidsteer, 80 HP	933	Skidsteer loader with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	$44.09	86	$3,791.74
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$37.98	18	$683.64
Chainsaw	937	Equipment and power unit costs. Labor not included.	Hour	$6.43	16	$102.88
Labor						
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$37.24	18	$670.32
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12”, Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$19.43	86	$1,670.98
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$18.79	36	$676.44
Mobilization						
Mobilization, small equipment	1138	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	$175.68	1	$175.68

Practice: 314 - Brush Management

Scenario: #5 - Mechanical & Chemical

Scenario Description:

Removal of woody vegetation of light-medium infestations on gentle sloping to moderately deep to deep soils. The practice entails the removal of brush by the use of mechanical cutter, chopper or other light equipment followed by an application of low cost chemicals in low volumes of material in order to reduce fuel loading and improve ecological site condition. Brush density has exceeded desired levels based on ecological site potential. It has been determined that the brush is at the medium infestation rate. Typical unit is 30 acres.

Before Situation:

Area consist of excessive stands of shrub species degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat.

After Situation:

Woody species are removed and burned to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

Scenario Feature Measure: Acres planned

Scenario Unit: Acre

Scenario Typical Size: 30

Scenario Cost: $6,817.02 **Scenario Cost/Unit:** $227.23

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Chemical, ground application	948	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$5.93	30	$177.90
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$37.98	12	$455.76
Skidsteer, 80 HP	933	Skidsteer loader with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	$44.09	60	$2,645.40
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$18.79	48	$901.92
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$37.24	16	$595.84
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12”, Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$19.43	60	$1,165.80
Materials						
Herbicide, Surfactant	1095	Surfactants reduce the surface tension of water to produce more uniform coverage and penetration of herbicides, and weed killers. Paraffin Based Petroleum Surfactant. Refer to WIN-PST for product names and active ingredients. Includes materials and shi	Acre	$1.32	30	$39.60
Herbicide, Picloram	337	Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	$19.12	30	$573.60
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$261.20	1	$261.20

Practice: 314 - Brush Management

Scenario: #6 - Mechanical & Chemical, chip debris

Scenario Description:

Removal of woody vegetation of medium-heavy infestations on gentle sloping to moderately deep to deep soils. The practice entails the removal of brush by the use of mechanical cutter, chopper or other light equipment followed by an application of low cost chemicals in low volumes of material in order to reduce fuel loading and improve ecological site condition. Brush density has exceeded desired levels based on ecological site potential. It has been determined that the brush is at the medium infestation rate. Typical unit is 40 acres.

Before Situation:

Area consist of excessive stands of shrub species degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat.

After Situation:

Woody species are removed and burned to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

Scenario Feature Measure: Acres planned

Scenario Unit: Acre

Scenario Typical Size: 40

Scenario Cost: $13,718.02 **Scenario Cost/Unit:** $342.95

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Skidsteer, 80 HP	933	Skidsteer loader with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	$44.09	42	$1,851.78
Chemical, ground application	948	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$5.93	40	$237.20
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$37.98	12	$455.76
Mechanical cutter, chopper	943	Masticator, flail shredder, hydro axe, brush cutter, etc. Equipment and power unit costs. Labor not included.	Hour	$131.20	40	$5,248.00
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$18.79	48	$901.92
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$19.43	40	$777.20
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$37.24	54	$2,010.96
Materials						
Herbicide, Surfactant	1095	Surfactants reduce the surface tension of water to produce more uniform coverage and penetration of herbicides, and weed killers. Paraffin Based Petroleum Surfactant. Refer to WIN-PST for product names and active ingredients. Includes materials and shi	Acre	$1.32	40	$52.80
Herbicide, Imazapyr	336	Pre and post-emergent, non-selective herbicide for control of undesirable vegetation in non-crop areas. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	$41.50	40	$1,660.00
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$261.20	2	$522.40

Practice: 314 - Brush Management

Scenario: #7 - Chemical, Individual Plant Treatment

Scenario Description:

This Practice is for the implementation of brush management on range, pasture or native pasture using Individual Plant Treatment (IPT). The typical method of control is application of herbicides (basal or foliar location) on selected individual plants.

Before Situation:

Brush species exceed desired levels resulting in degraded plant condition, loss of forage production, or degraded wildlife habitat. Densities of brush exceed levels indicated in the ecological site descriptions.

After Situation:

Brush has been treated to a level which results in improved plant condition, forage production, or wildlife habitat. The typical method of control is application of herbicides (basal or foliar location) on selected individual plants.

Scenario Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 30

Scenario Cost: $2,708.91 **Scenario Cost/Unit:** $90.30

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
All terrain vehicles, ATV	965	Includes equipment, power unit and labor costs.	Hour	$31.30	20	$626.00
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$37.98	6	$227.88
Chemical, spot treatment, single stem application	964	Ground applied chemical to individual plants or group of plants, e.g., backpack sprayer treatment. Equipment and labor cost included.	Hour	$58.02	20	$1,160.40
Materials						
Herbicide, Imazapyr	336	Pre and post-emergent, non-selective herbicide for control of undesirable vegetation in non-crop areas. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	$41.50	15	$622.50
Mobilization						
Mobilization, very small equipment	1137	Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces of equipment if all hauled simultaneously.	Each	$72.13	1	$72.13

Practice: 314 - Brush Management

Scenario: #8 - Chemical - Ground Applied

Scenario Description:

Apply brush management on 30 acres of rangeland, grazed forest, or pasture thru the use of broadcast application of material using low cost chemical(s) to reduce or remove undesirable deciduous species (brush) in uplands and other areas not in or directly adjacent to streams, ponds, or wetlands.

Before Situation:

Plant, animal, or wildlife resource concerns associated with uplands and other areas not in or adjacent to stream, ponds, or wetland on grazed range, grazed forest, or pasture which are adversely affected by brush.

After Situation:

A 30 acre unit of pasture, grazed range, or grazed forest where reduction or removal of undesirable deciduous species have been accomplished by broadcast or spot treatment chemical application to address plant, animal, and wildlife resource concerns.

Scenario Feature Measure: Acres planned

Scenario Unit: Acre

Scenario Typical Size: 30

Scenario Cost: $1,874.14 **Scenario Cost/Unit:** $62.47

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$37.98	2	$75.96
Chemical, ground application	948	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$5.93	30	$177.90
Labor						
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$37.24	2	$74.48
Materials						
Herbicide, Surfactant	1095	Surfactants reduce the surface tension of water to produce more uniform coverage and penetration of herbicides, and weed killers. Paraffin Based Petroleum Surfactant. Refer to WIN-PST for product names and active ingredients. Includes materials and shi	Acre	$1.32	30	$39.60
Herbicide, Imazapyr	336	Pre and post-emergent, non-selective herbicide for control of undesirable vegetation in non-crop areas. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	$41.50	30	$1,245.00
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$261.20	1	$261.20

Practice: 314 - Brush Management

Scenario: #9 - Chemical, Aerial Applied

Scenario Description:

Apply brush management on 80 acres of rangeland, grazed forest, or pasture thru the use of broadcast aerial application of material with low cost chemical(s) to reduce or remove undesirable deciduous species (brush) in uplands and other areas not in or directly adjacent to streams, ponds, or wetlands.

Before Situation:

Plant, animal, or wildlife resource concerns associated with uplands and other areas not in or adjacent to stream, ponds, or wetland on grazed range, grazed forest, or pasture which are adversely affected by brush.

After Situation:

A 80 acre unit of pasture, grazed range, or grazed forest where reduction or removal of undesirable deciduous species have been accomplished by broadcast or spot treatment chemical application to address plant, animal, and wildlife resource concerns.

Scenario Feature Measure: Acres planned

Scenario Unit: Acre

Scenario Typical Size: 80

Scenario Cost: $3,085.97 **Scenario Cost/Unit:** $38.57

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Chemical, aerial application, fixed wing	947	Chemical application performed by fixed wing aircraft. Includes equipment, power unit and labor costs.	Acre	$9.08	80	$726.40
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$37.98	3	$113.94
Labor						
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$37.24	3	$111.72
Materials						
Herbicide, Picloram	337	Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	$19.12	80	$1,529.60
Herbicide, Surfactant	1095	Surfactants reduce the surface tension of water to produce more uniform coverage and penetration of herbicides, and weed killers. Paraffin Based Petroleum Surfactant. Refer to WIN-PST for product names and active ingredients. Includes materials and shi	Acre	$1.32	80	$105.60
Mobilization						
Mobilization, large equipment	1140	Equipment >150HP or typical weights greater than 30,000 pounds or loads requiring over width or over length permits.	Each	$498.71	1	$498.71

Practice: 314 - Brush Management

Scenario: #11 - Mechanical - bush hog

Scenario Description:

Removal of small woody vegetation of light infestations on gentle sloping to moderately deep to deep soils. The practice entails the removal of brush by the use of mechanical cutter, chopper or other light equipment in order to reduce fuel loading and improve ecological site condition. Brush density has exceeded desired levels based on ecological site potential. It has been determined that the brush is at a light infestation. Typical unit is 10 acres.

Before Situation:

Area consist of excessive stands of shrub species degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat.

After Situation:

Woody species are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

Scenario Feature Measure: Acres Planned

Scenario Unit: Acre

Scenario Typical Size: 10

Scenario Cost: $389.64 **Scenario Cost/Unit:** $38.96

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Mower, Bush Hog	940	Equipment and power unit costs. Labor not included.	Hour	$51.89	3	$155.67
Labor						
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12”, Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$19.43	3	$58.29
Mobilization						
Mobilization, small equipment	1138	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	$175.68	1	$175.68

Practice: 314 - Brush Management

Scenario: #11 - Mechanical - heavy disking

Scenario Description:

Removal of small woody vegetation of heavy infestations on gentle sloping to moderately deep to deep soils. The practice entails the removal of brush by the use of a disk to sever and displace the unwanted woody vegetation to reduce fuel loading and improve ecological site condition. This scenario is intended for sites where the vegetation is too big for light disking and not large enough for drum chopping or forestry mulching. Brush density has exceeded desired levels based on ecological site potential. It has been determined that the brush is at a heavy infestation. Typical unit is 10 acres. Mobilization is not required as most farmers have this equipment on site.

Before Situation:

Area consist of excessive stands of shrub species degrading health and vigor of native herbaceous species promoting noxious and invasive species and degrading wildlife habitat.

After Situation:

Woody species are removed to achieve the desirable plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat.

Scenario Feature Measure: Acres Planned

Scenario Unit: Acre

Scenario Typical Size: 10

Scenario Cost: $160.50 **Scenario Cost/Unit:** $16.05

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Tillage, Primary	946	Includes heavy disking (offset) or chisel plow. Includes equipment, power unit and labor costs.	Acre	$16.05	10	$160.50

Practice: 314 - Brush Management

Scenario: #12 - Mechanical Chem, Cut Stump

Scenario Description:

Removal of medium-heavy infestations of woody invasives on generally B & C slopes, typically limestone soils. The practice entails the removal of brush by the use of chainsaw or mechanical cutter, followed by a direct application of low cost chemical herbicide to prevent resprouting. Purpose is to promote natural regeneration, reduce fuel loading, and improve ecological site condition. Brush density and canopy has exceeded desired levels based on ecological site potential. It has been determined that the brush is at the medium to heavy infestation rate. Typical unit is 20 acres.

Before Situation:

Area consists of medium to heavy infestation of woody invasive species that are adversely affecting natural regeneration, promoting noxious and invasive species and degrading wildlife habitat. Resource concern is Degraded Plant Condition - Excessive Plant Pressure. Typical Scenario size is 20 acres.

After Situation:

Woody species are removed to achieve the desired natural regeneration of the plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat is achieved.

Scenario Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 20

Scenario Cost: $7,051.36 **Scenario Cost/Unit:** $352.57

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Chainsaw	937	Equipment and power unit costs. Labor not included.	Hour	$6.43	200	$1,286.00
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$37.98	20	$759.60
Chemical, spot treatment, single stem application	964	Ground applied chemical to individual plants or group of plants, e.g., backpack sprayer treatment. Equipment and labor cost included.	Hour	$58.02	10	$580.20
Labor						
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$37.24	4	$148.96
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$18.79	200	$3,758.00
Materials						
Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	$15.63	20	$312.60
Mobilization						
Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been i	Dollar	$1.03	200	$206.00

Practice: 314 - Brush Management

Scenario: #13 - Grapevine Control

Scenario Description:

General laborer is hired to hand cut 100-175 grapevines/acre in a closed canopy pole-sized hardwood stand with an axe or machete at a point one to four feet above the ground to deaden the vine and stop current damage and prevent future damage to the crowns of high quality trees. The closed canopy provides shade that will sufficiently limit regrowth of severed vines. All vines will not be treated as those in non-crop trees will be left as a wildlife food source. Resource concern is Degraded Plan Condition - Undesirable Plant Productivity and Health. Typical stand size is 20 acres.

Before Situation:

Hardwood stands with co-dominant trees that are greater than 15 feet tall and having a red oak site index of 60 or more and a closed canopy with 100-175 grapevines/acre extending from the ground into the crowns of high quality crop trees limiting the crown development and growth and making trees prone to storm damage. Grapevines impair the productivity, health and vigor of the individual trees.

After Situation:

The applied treatment results in the improved health, productivity and vigor of 40-100 trees per acre which have had the grapevines deadened. Ninety percent control of the treated vines is expected. Continued operation and maintenance activities should eventually result in complete control of the targeted vines.

Scenario Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 20

Scenario Cost: $1,648.01 **Scenario Cost/Unit:** $82.40

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
All terrain vehicles, ATV	965	Includes equipment, power unit and labor costs.	Hour	$31.30	10.5	$328.65
Pruning tools, hand tools	1318	Pruning tools, hand tools, shears, loppers, pole saw, handsaw. Material costs only. Labor not included.	Hour	$4.77	56	$267.12
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$18.79	56	$1,052.24

Practice: 314 - Brush Management

Scenario: #14 - Cut Stump, 2 year followup spray

Scenario Description:

The practice entails the control of woody vegetation by treating it up to three times with chmical ground application during the multi-year treatment period in order to improve ecological site condition. The brush can be treated with the same method or by a combination of methods. Woody vegetation needs to be treated at least twice in order to fully control it. Generally, herbicide volumes are reduced as the last treatment will kill resprouting stems or those which survived the first treatment or newly sprouted seedlings. Brush density has exceeded desired levels based on ecological site potential. Removal of heavy infestations of woody invasives on generally B & C slopes, typically limestone soils. The practice entails the removal of brush by the use of chainsaw or mechanical cutter, followed by a direct application of low cost chemical herbicide to prevent resprouting. Resprouting occurs on approximately 5 acres the year after initial treatment and follow-up spray is required. Resprouting occurs on 2 acres the second year after initial treatment and follow-up spray is required. After that time anyremaining resprouting can be controlled through operation and maintenance activities. Purpose is to promote natural regeneration, reduce fuel loading, and improve ecological site condition. Brush density and canopy has exceeded desired levels based on ecological site potential. It has been determined that the brush is at the medium to heavy infestation rate. Typical unit is 20 acres.

Before Situation:

Area consists of heavy infestation of woody invasive species that are adversely affecting natural regeneration, promoting noxious and invasive species and degrading wildlife habitat. Resource concern is Degraded Plant Condition - Excessive Plant Pressure. Typical Scenario size is 20 acres.

After Situation:

Woody species are removed to achieve the desired natural regeneration of the plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat is achieved.

Scenario Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 20

Scenario Cost: $9,191.70 **Scenario Cost/Unit:** $459.59

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Chainsaw	937	Equipment and power unit costs. Labor not included.	Hour	$6.43	200	$1,286.00
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$37.98	22	$835.56
Chemical, spot treatment, single stem application	964	Ground applied chemical to individual plants or group of plants, e.g., backpack sprayer treatment. Equipment and labor cost included.	Hour	$58.02	30	$1,740.60
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$18.79	200	$3,758.00
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$37.24	6	$223.44
Materials						
Herbicide, Triclopyor	338	Refer to WIN-PST for product names and active ingredients. Materials and shipping	Acre	$42.30	27	$1,142.10
Mobilization						
Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been i	Dollar	$1.03	200	$206.00

Practice: 314 - Brush Management

Scenario: #15 - Spray Treatment-3yr Completion

Scenario Description:

The practice entails the control of woody vegetation by treating it up to three times with chmical ground application during the multi-year treatment period in order to improve ecological site condition. The brush can be treated with the same method or by a combination of methods. Sweetgum and Sycamore in early successional habitat management areas need to be treated with three chemical ground applications in order to fully control it. Generally, herbicide volumes are reduced as the last treatment will kill resprouting stems or those which survived the first treatment or newly sprouted seedlings. Brush density has exceeded desired levels based on ecological site potential. Removal of heavy infestations of woody invasives on generally B & C slopes, typically limestone soils. The practice entails the removal of brush by the use of chainsaw or mechanical cutter, followed by a direct application of low cost chemical herbicide to prevent resprouting. Resprouting occurs on approximately 5 acres the year after initial treatment and follow-up spray is required. Resprouting occurs on 2 acres the second year after initial treatment and follow-up spray is required. After that time anyremaining resprouting can be controlled through operation and maintenance activities. Purpose is to promote natural regeneration, reduce fuel loading, and improve ecological site condition. Brush density and canopy has exceeded desired levels based on ecological site potential. It has been determined that the brush is at the medium to heavy infestation rate. Typical unit is 10 acres.

Before Situation:

Area consists of heavy infestation of woody invasive species that are adversely affecting natural regeneration, promoting noxious and invasive species and degrading wildlife habitat. Resource concern is Degraded Plant Condition - Excessive Plant Pressure. Typical Scenario size is 10 acres.

After Situation:

Woody species are removed to achieve the desired natural regeneration of the plant community based on species composition, structure, density, and canopy cover or height. Ecological site condition is progressing in an upward trend, hydrology and plant health and vigor is returning to near normal levels, and improved wildlife habitat is achieved.

Scenario Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 10

Scenario Cost: $4,781.14 **Scenario Cost/Unit:** $478.11

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Chainsaw	937	Equipment and power unit costs. Labor not included.	Hour	$6.43	100	$643.00
Chemical, spot treatment, single stem application	964	Ground applied chemical to individual plants or group of plants, e.g., backpack sprayer treatment. Equipment and labor cost included.	Hour	$58.02	15	$870.30
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$37.98	11	$417.78
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$18.79	100	$1,879.00
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$37.24	4	$148.96
Materials						
Herbicide, Triclopyor	338	Refer to WIN-PST for product names and active ingredients. Materials and shipping	Acre	$42.30	17	$719.10
Mobilization						
Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been i	Dollar	$1.03	100	$103.00

Practice: 314 - Brush Management

Scenario: #16 - Hack and Squirt

Scenario Description:

This practice is for the implementation of brush management on forest land using the hack and squirt method. The typical method of control is cutting or "frilling" around the entire diameter of an invasive tree such as tree-of-heaven with an axe and then spraying a herbicide such as imazapyr thoroughly wetting the frilled area. Infested area is typically located away from the farm headquarters. Acreage is based on 100% infestation - typical infestation is 5 acres.

Before Situation:

Invasive tree species exceed desired levels resulting in degraded plant condition, loss of timber production, or degraded wildlife habitat. Densities of invasive species exceed levels indicated in the ecological site descriptions.

After Situation:

Invasive species have been treated to a level which results in improved plant condition, timber production, or wildlife habitat. The typical method of control is cutting or "frilling" around the entire diameter of an invasive tree such as tree-of-heaven with an axe and then spraying a herbicide such as imazapyr thoroughly wetting the frilled area.

Scenario Feature Measure: Acres treated

Scenario Unit: Acre

Scenario Typical Size: 5

Scenario Cost: $1,141.93 **Scenario Cost/Unit:** $228.39

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	$37.98	5	$189.90
Chemical, spot treatment, single stem application	964	Ground applied chemical to individual plants or group of plants, e.g., backpack sprayer treatment. Equipment and labor cost included.	Hour	$58.02	5	$290.10
All terrain vehicles, ATV	965	Includes equipment, power unit and labor costs.	Hour	$31.30	5	$156.50
Pruning tools, hand tools	1318	Pruning tools, hand tools, shears, loppers, pole saw, handsaw. Material costs only. Labor not included.	Hour	$4.77	10	$47.70
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$18.79	15	$281.85
Materials						
Herbicide, Imazapyr	336	Pre and post-emergent, non-selective herbicide for control of undesirable vegetation in non-crop areas. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	$41.50	2.5	$103.75
Mobilization						
Mobilization, very small equipment	1137	Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces of equipment if all hauled simultaneously.	Each	$72.13	1	$72.13